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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/718,777

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Andreas Kyek

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EXAMINER

NGUYEN, KIET TUAN

ART UNIT

PAPER NUMBER

2881

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/718,777

Applicant(s)

KYEK ANDREAS

Examiner

Kiet T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 55-62 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-54 is/are allowed.
- 6) ☒ Claim(s) 1, 12, 15, 19-24 and 27-31 is/are rejected.
- 7) ☒ Claim(s) 2-11, 13, 14, 16-18, 25 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/5/04</u> . | 6) <input type="checkbox"/> Other: _____ |

Applicant's election of Group I including claims 1-54 in the reply filed on 07-07-2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant therefore is requested to cancel the non-elected claims 55-62.

Objected Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the primary electrode configured transversely with respect to a propagation direction of the ion beam as recited in claims 31 and 54** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of

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the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Rejection Under 35 U.S.C. 112, Second Paragraph

Claims 5, 36 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites the limitation "said side surfaces" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 36 recites the limitation "said side surfaces" in line 5. There is insufficient antecedent basis for this limitation in the claim.

Claim 42 recites the limitation "said distance" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Rejection Under 35 U.S.C. 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 12 and 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamaguchi (JP401274350A).

Yamaguchi (JP401274350A) discloses, in figs. 1-2, an ion implantation apparatus. The apparatus includes an ion beam 53; a wafer W; and an electron

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neutralizer including a primary electrode 2 or 55 which is positioned parallel to a propagation direction of the ion beam for producing primary electrons, a mesh electrode 58 having a plurality of apertures or electrodes 9 and 12 having a plurality of apertures for accelerating the primary electrons, and a target electrode 3 or 56 for producing secondary electrons.

Claims 1, 12 and 27-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al (5,138,169).

Yamazaki et al (5,138,169) discloses, in figs. 1-9, apparatus for irradiating low energy electrons onto an ion beam or a semiconductor substrate. The apparatus includes an ion beam 606 or 901; a semiconductor substrate 602 or 909; and an electron neutralizer including a primary electrode 101 or 610 which is positioned parallel to a propagation direction of the ion beam (see fig. 6) or transversely with respect to a propagation direction of the ion beam (see fig. 9) for producing primary electrons, an acceleration electrode 103 for accelerating the primary electrons, and a target electrode 107 for producing secondary electrons.

Rejection Under 35 U.S.C. 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15 and 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (JP401274350A) or Yamazaki et al (5,138,169).

Yamaguchi (JP401274350A) or Yamazaki et al (5,138,169) disclose all the features as discussed above except the secondary electrode made of AL 99 or of an even purer aluminum as recited in claim 15; the acceleration electrode having at least 100 openings as recited in claims 19, 23 and 24; the acceleration electrode having at least 500 openings as recited in claim 20; the acceleration electrode having at least 1000 openings as recited in claim 21; a wire mesh having at least 100 holes or meshes as recited in claim 22; the acceleration electrode made of aluminum or an aluminum alloy as recited in claim 23; and the acceleration electrode made of AL 99.9 or an even purer aluminum as recited in claim 24.

Making the secondary electrode of AL 99 or of an even purer aluminum, or the acceleration electrode of aluminum, an aluminum alloy, AL 99.9 or an even purer aluminum is considered to be obvious variation in design, since it well known in the art to use these material for making an electrode, thus would have been obvious to one skilled in the art to use the material such as AL 99, a purer aluminum, an aluminum alloy or AL 99.9 for making an electrode in the Yamaguchi (JP401274350A) or Yamazaki et al (5,138,169) apparatus for controlling electrons.

Using the electrode having at least 100, 500 or 1000 openings, or the wire mesh having at least 100 holes or meshes is also considered to be obvious variation in design, since the number openings of the electrode or wire mesh are used to make the electron beam to be greater area, thus would have been obvious to one skilled in the art to use the electrode having at least 100, 500 or 1000 openings, or the wire mesh having

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at least 100 holes or meshes in the Yamaguchi (JP401274350A) or Yamazaki et al (5,138,169) apparatus for neutralizing the ion beam or the semiconductor substrate.

Claims 32-54 are allowed.

Claims 2-11, 13-14, 16-18, and 25-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Reasons for indicating allowable subject matter

The prior art fails to disclose an apparatus for producing secondary electrons, which includes a secondary electrode having at least one aperture opening for producing secondary electrons as recited in claims 2, 7, 9, 10, 13, 14, 16, 17 and 18; an acceleration electrode having a mean surface roughness of less than a mean surface roughness of a secondary electrode as recited in claim 25; or a secondary electrode having at least one aperture opening for preventing primary electrons from passing through as recited in claim 32.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet T. Nguyen whose telephone number is 571-272-2479. The examiner can normally be reached on Monday-Friday 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KN



KIET T. NGUYEN
PRIMARY EXAMINER